



ARS Assessment of Future Needs

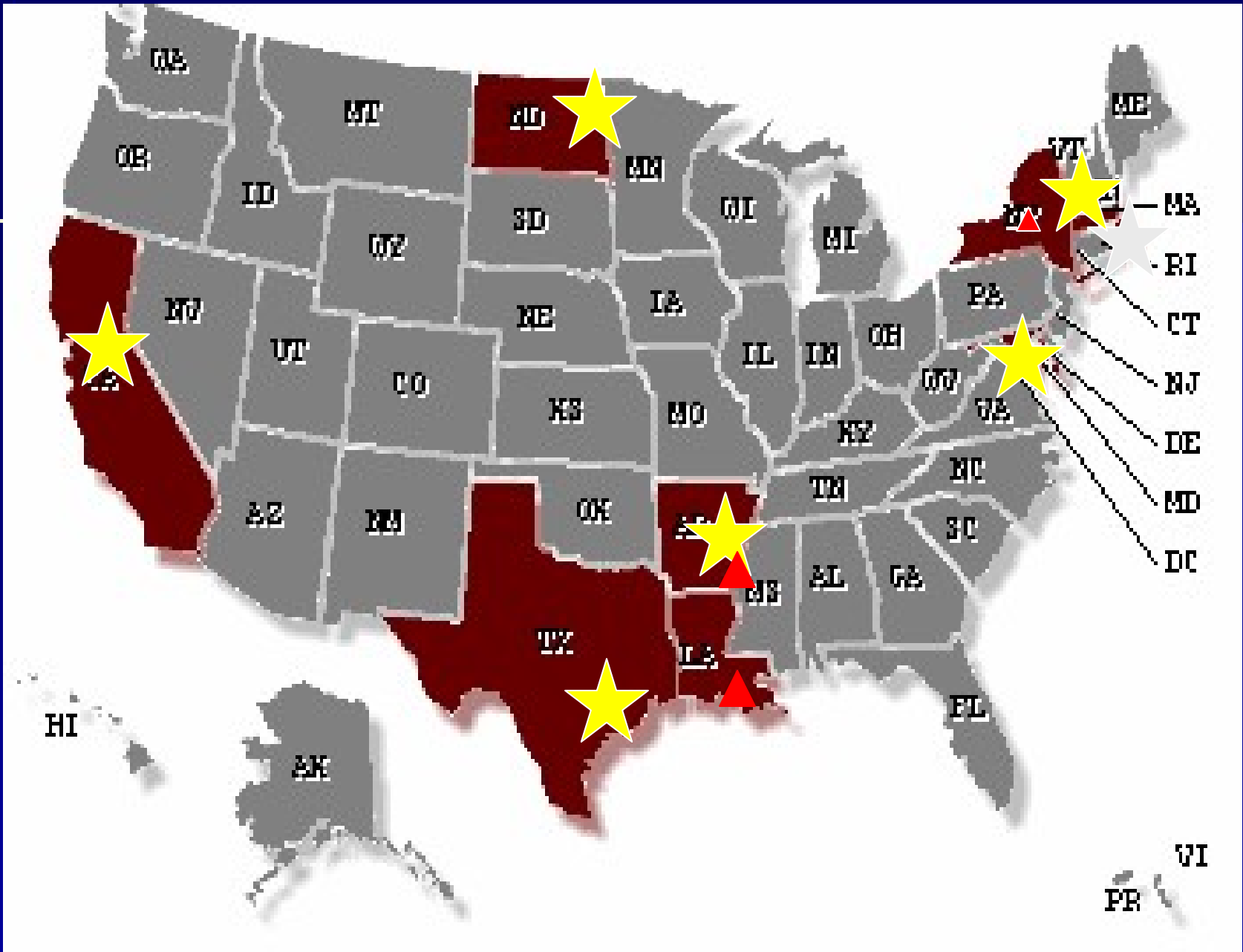
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National Program Leaders, Human Nutrition
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Guiding Questions Research Perspective

- What is known about successful prevention of childhood obesity?
- What research strategies needed for next decade?
- What barriers exist to implementing these research strategies?

ARS National Human Nutrition Program

- Six Human Nutrition Research Centers
- Projects at other locations
 - Lower Mississippi Delta NRI
 - U.S Plant, Soil and Nutrition Lab
 - Pennington Biomedical Research Center
 - ARS Regional Research Centers



National Human Nutrition Program Action Plan

- Nutrition Monitoring
- Composition of Foods
- Bioavailability of Nutrients and Food Components
- Nutrient Requirements
- Health Promoting Properties of Plant and Animal Foods
- Relationships between Diet, Genetics and Lifestyle and Risk for Obesity & Chronic Disease
- Health Promoting Intervention Strategies for Targeted Populations

CNRC at the Baylor College of Medicine, Houston, TX

- Childhood Obesity: Energy Balance, Body Composition & Genetics
- Development of Children's Eating Behaviors
- Pregnancy and Lactation
- Developmental Origins of Chronic Diseases
- Nutritional Regulation of Cell & Organ Growth & Development
- Nutrient – Gene Interactions
- Absorption & Metabolism of Essential Minerals
- Phytonutrients



Numbers in parentheses = number of individual research projects in that area

Development of Eating and Physical Activity Behaviors

- Identify factors underlying development of children's eating and physical activity habits.
- Determine how to influence children and families to adopt healthier eating and physical activity habits to prevent obesity.
- Environmental & genetic influences on "eating in the absence of hunger" in Hispanic children.

Arkansas Children's Nutrition Center Little Rock, AR



- Brain development & function
- Functional foods
- Bone development
- Childhood obesity
- Immune function

Childhood Obesity: Infant Feeding Behaviors

Study Design:

- Longitudinal prospective study of children from birth through 6 years of age.
- Breast-fed, milk formula fed, & soy formula fed
- Outcomes: Body composition, neurological development, immunity, etc.

**What is known about
successful prevention of
childhood obesity?**

Etiology Research

- We know there is considerable variation in the development of obesity between individuals/populations exposed to the same foods/lifestyles.
- We know interactions between genetics, gender, behavior, and lifestyle modulate obesity development.
- BUT...we don't know how these factors contribute individually or collectively resulting in obesity.

Behavior Research

- It appears that education alone is not sufficient for sustainable change.
- We need to understand the development of food choice & lifestyle behaviors in children.
- And, we need to know how to change these behaviors in a sustainable manner.

Solution-Oriented Research

- We know there is an immediate need for solution-oriented intervention to slow the childhood obesity epidemic.
- There is a need to critically evaluate childhood obesity interventions to date.
- Solution oriented interventions must go hand-in-hand with strong program evaluation.

**What research strategies
are needed for the next
decade?**

Research Strategies: Overall Focus

- Obesity prevention
- Eliminating or slowing of unhealthy weight gain for those already overweight

What Types of Studies & Why?

- Obesity develops gradually
- Literature replete with short-term observational & interventional studies
- Longitudinal research is essential for:
 - understanding the etiology of childhood obesity
 - sustainability of behavioral interventions
 - effectiveness of multifactorial solution-oriented interventions

Research Strategies: Types of Studies

- We live in an obesigenic environment. Successful interventions in the home may be undone by other influences in the community.
- Community Participatory Research Interventions
 - concerns exist on design, implementation, and evaluation strategies

**What barriers exist to
implementing these
strategies?**

Barriers: Longitudinal Research

- Foremost, longitudinal research is expensive
- Most federal, state, and local agencies lack the capability of funding long-term research
- Longitudinal tracking of subjects is difficult
- Particularly difficult to track low-income or minority children who are especially susceptible to development of obesity



Overcoming Barriers

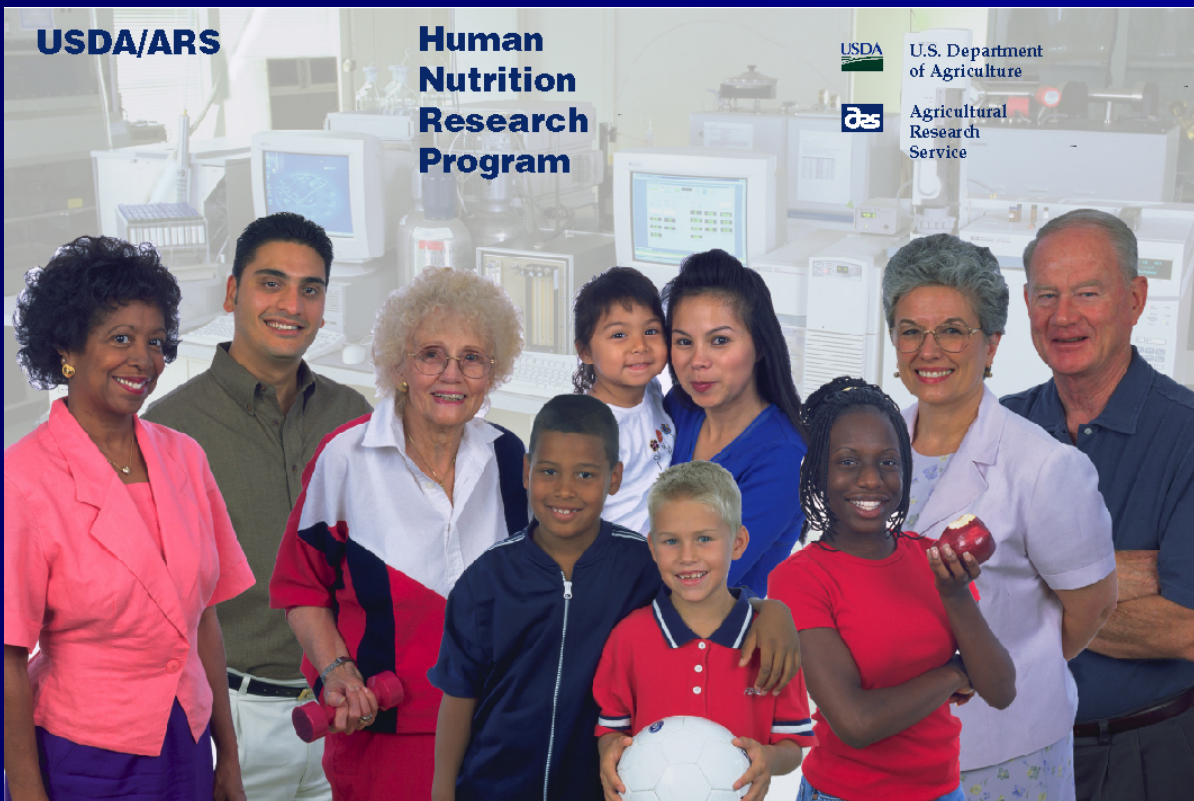
- Political will to make childhood obesity a national public health priority
- Congressional funding will follow.
- Magnitude of the problem mandates that federal agencies conduct cross-cutting research
- Research partnerships essential to pool and leverage funds and expertise.

Thanks for your attention!

USDA/ARS

Human Nutrition Research Program

 U.S. Department of Agriculture
 Agricultural Research Service



Improving the Health of All Generations

- Arkansas Children's Nutrition Center
Little Rock, Arkansas
- Beltsville Human Nutrition Research Center • Beltsville, Maryland
- Children's Nutrition Research Center at Baylor College of Medicine
Houston, Texas
- Grand Forks Human Nutrition Research Center • Grand Forks, North Dakota
- Jean Mayer Human Nutrition Research Center on Aging at Tufts University • Boston, Massachusetts
- Western Human Nutrition Research Center • Davis, California
- Lower Mississippi Delta Nutrition Intervention Research Initiative
Little Rock, Arkansas
- Plant, Soil, and Nutrition Laboratory
Ithaca, New York

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